# EMPEROR ENERGY EXPLORATION WELL

Emperor Energy are planning to drill a single exploration well known as Judith-2 in Petroleum Exploration Permit VIC/P47 to identify hydrocarbons present within sandstone reservoirs.

Emperor Energy is engaging with stakeholders as part of developing the Judith-2 Exploration Drilling Environment Plan.

## Who is Emperor Energy

Emperor Energy is an Australian Company listed on the Australian Securities Exchange. The Company is managed by a Board of Directors and owned by a diverse range of primarily Australian shareholders.

Emperor Energy's key focus is the exploration, appraisal and potential development of the Judith Gas Field located near existing gas fields in the Gippsland Basin, offshore of Victoria.

Emperor Energy believes development of the Judith Gas Field would contribute substantially to improving the current and projected shortage of domestic gas in the Eastern Australian States.

## Why is Emperor Energy planning to drill the Judith-2 Well

Gas was discovered in the Judith Gas Field in 1989 when the Judith-1 well was drilled by Shell. At that time the discovered gas resource was not considered for appraisal and development given market conditions and an abundance of existing supply.

Emperor Energy has reassessed all available data from the Judith Gas Field including that of a recent 3D seismic survey. This reassessment has resulted in Emperor Energy now considering that a substantial economic gas resource exists at Judith. The Judith-2 well drilling program will enable a detailed appraisal of this gas resource and if successful will provide Victoria with additional gas reserves.

Additional gas reserves could be developed and used as “transition gas” which is essential in supporting a stable transition to renewable energy sources. Additional gas supply for electricity generation will also assist Victoria in reducing its current dependence on high emissions Brown Coal Electricity Generation which would significantly reduce Victoria’s Greenhouse Gas Emissions.

## Feedback

Emperor Energy is identifying relevant stakeholders and welcomes comments and feedback about the potential impacts of the proposed activities. If you require further information or have any comments regarding the proposed exploration well, please contact us at stakeholder@emperorenergy.com.au. Your feedback will be included in the Environment Plan for the proposed activity, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

## Activity Overview

### Location (Figure 1)

- Gippsland Basin
- Within Commonwealth waters
- Approximately 37km offshore
- Water depth approximately 70m
- Well location to be within 1000m of
  Latitude 38º 08’ 30.87
  Longitude 148º 32’ 21.8”.

### Estimated Duration

- Activities will be undertaken between mid-2023 to end the of 2025 depending on approvals, drill rig availability and weather constraints.
- Total activity length is expected to be up to 69 days based on:
  - Geophysical: up to 4 days
  - Geotechnical: up to 5 days
  - Drilling: up to 60 days
  - Activities will be conducted on a 24-hour basis.

## Proposed activities

Emperor Energy proposes to undertake activities that consist of:

Seabed surveys:

- Geophysical and geotechnical seabed surveys, including 2D shallow seismic, to identify hazards at the well location.

The geophysical and geotechnical surveys will be undertaken separately and prior to drilling with a special purpose vessel.

Drilling of the Judith-2 well:

- Mooring or jacking-up the drilling rig.
- Drilling the well.
- Evaluating the well including vertical seismic profiling.
- Production testing the well including flaring of any produced hydrocarbons.
- Plugging and abandoning the well.
- Removal of the well head.

The drill rig will be supported by up to three vessels with helicopters used for crew change.

## Environment Plan

An Environment Plan for the activities will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for assessment with acceptance of the plan required before operations can begin.

The Environment Plan will be available for public comment for one month upon submission to NOPSEMA. You can register to be notified when environment plans are available for comment here: https://info.nopsema.gov.au/home/open_for_comment

## Location

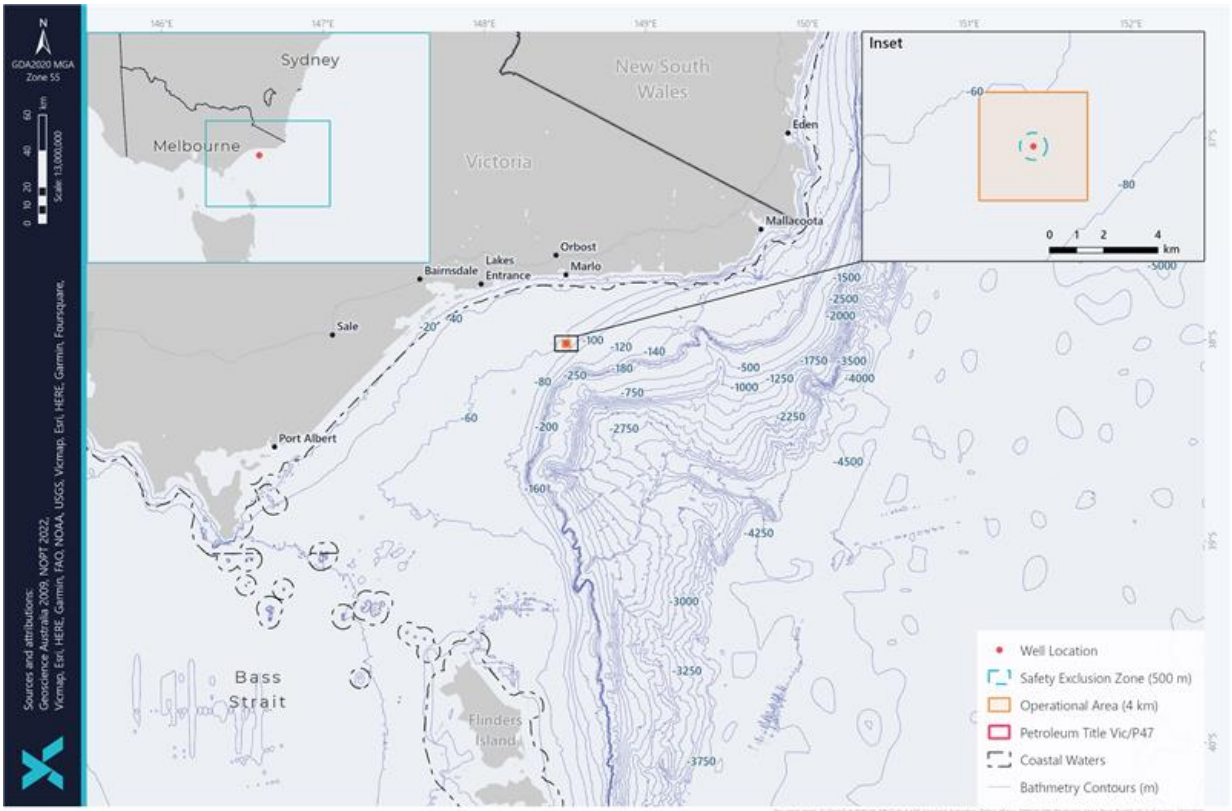


**Figure 1: Location of the Judith-2 Well**

## Environmental Management of Potential Impacts

A summary of key environmental management controls for the Judith-2 activities are summarised below.

**Vessel interaction**

The well will be drilled be either an anchored or jack-up drill rig with up to three support vessels. Pre-drilling seabed surveys will be undertaken using a purpose-built vessel. Interaction with commercial and recreational vessels may occur. To manage these interactions the following will be implemented:

- Pre-start notifications and marine notices will be issued.
- Ongoing stakeholder consultation and notifications.
- A 500 m Petroleum Safety Zone around the drill rig with a 2 km cautionary zone to allow for the drill rig anchors and mooring chains.
- A 500 m exclusion zone around the survey vessel when undertaking seabed surveys.
- The drill rig and vessels will have:
  - Automatic Identification System (AIS) and visual and radar watch will always be maintained
  - Appropriate lighting, signals, navigation, and communication in compliance with the Navigation Act 2012 and associated Marine Orders.
- While undertaking seabed surveys, the streamer tail buoy will be fitted with lights and radar reflectors.

**Seismic Noise**

Research regarding the impact of seismic noise on marine fauna has found that effects range from no effect to temporary and permanent hearing shifts, physiological changes, and behavioural avoidance. Typically, where effects have been identified, fauna have been at close range to the seismic source. To manage seismic noise impacts to fauna the following will be undertaken:

- Compliance with EPBC Act Policy Statement 2.1 include pre-start observations, low power and shut down zones, and low-visibility procedures.
- At least one member of vessel crew trained in marine fauna observation and low power and shut down zone procedures.
- Reporting of marine fauna observations.

**Interaction with Marine Fauna**

To avoid marine fauna vessel strikes or potential entrapment in the streamer buoy the following will be implemented:

- At least one member of vessel crew trained in marine fauna observation.
- Vessels will not actively approach within the caution zone of a whale or dolphin in accordance with EPBC Regulations 2000 - Part 8 Division 8.1.
- Streamer tail buoy designed to avoid entrapment risk to turtles.

**Hydrocarbon release**

Emperor Energy will avoid an accidental hydrocarbon release and be prepared for a response in the unlikely event of an accidental release by:

- Drill and vessels (appropriate to class) will comply with MARPOL 73/78, the Navigation Act 2012, the Protection of the Sea (Prevention of Pollution from Ships Act 1983) and subsequent Marine Orders including the following:
  - Waste management requirements
  - Emergency drills
  - Shipboard Oil Pollution Emergency Plan or Shipboard Marine Pollution Emergency Plan.
- Relevant Stakeholders will be notified of activities prior to commencement .
- The Judith-2 Oil Pollution Emergency Plan will be accepted by NOPSEMA and in place, appropriate to the credible hydrocarbon spill scenario associated with activities.
- The Judith-2 Well Operations Management Plan will be accepted by NOPSEMA in accordance with the Offshore Petroleum and Greenhouse Gas Storage Act requirements, which include:

- Blowout Preventer (BOP) installed during drilling operations and regularly tested.

### What is a seabed survey? (Figure 2 and Figure 3)

A seabed survey is required to identify seabed topography and any potential hazards at the well and anchor mooring locations. The proposed seabed surveys consist of:

- Geophysical survey to collect bathymetry data and detect seabed hazards using:
  - Multibeam echo sounder
  - Sub-bottom profiler, side scan sonar and magnetometer
  - High resolution two-dimensional shallow reflective imaging (2D seismic survey)
- Geotechnical survey to collect information on the properties of the seabed and underlying shallow sediments using:
  - Core sampling (borehole)
  - Piezo cone penetrometer test (PCPT)
  - Grab samples

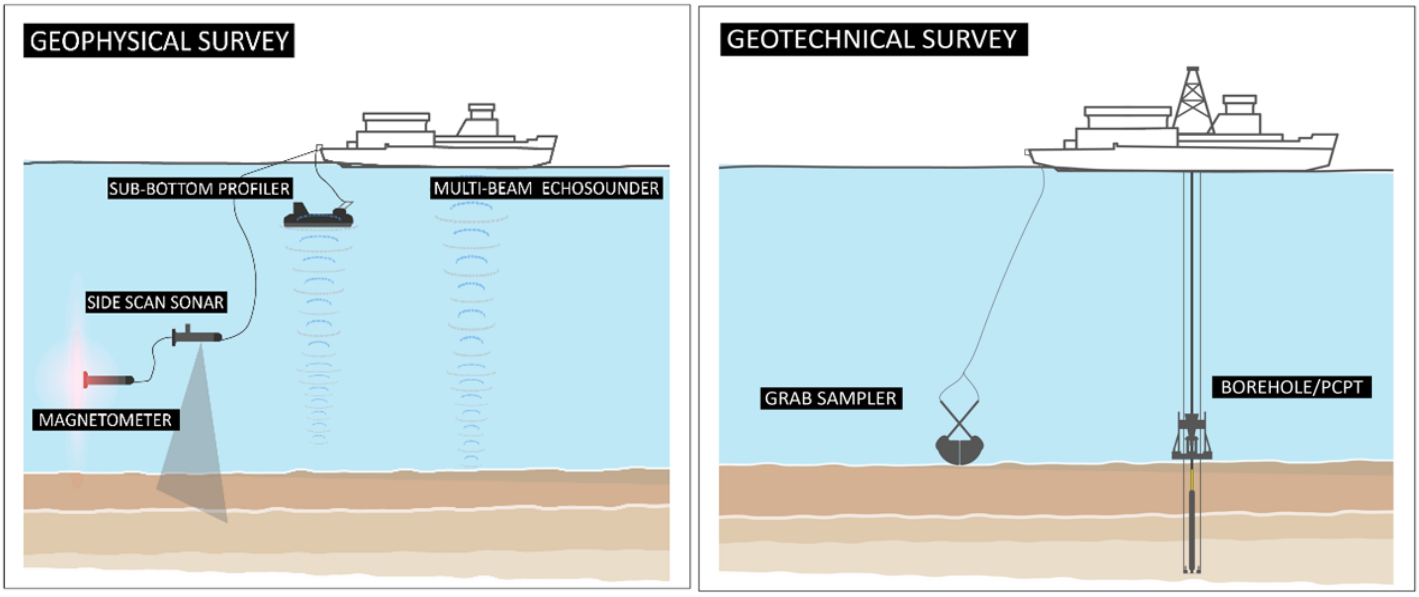


**Figure 2: Geophysical and Geotechnical Seabed Surveys**

### Why is a seabed seismic survey required? (Figure 3)

A high resolution shallow 2D seismic survey is required to identify any shallow subsurface drilling hazards including geological faults, gas-charged sediments, shallow water flows and buried channels. The survey will be acquired by a special-purpose seismic acquisition vessel up to 6 months prior to drilling the Judith-2 well. Equipment will consist of a sound source up to 160 $in^3$ and a 1.5 km streamer towed by a vessel at a speed of ~ 8-9 km/hr (4 – 5 knots).

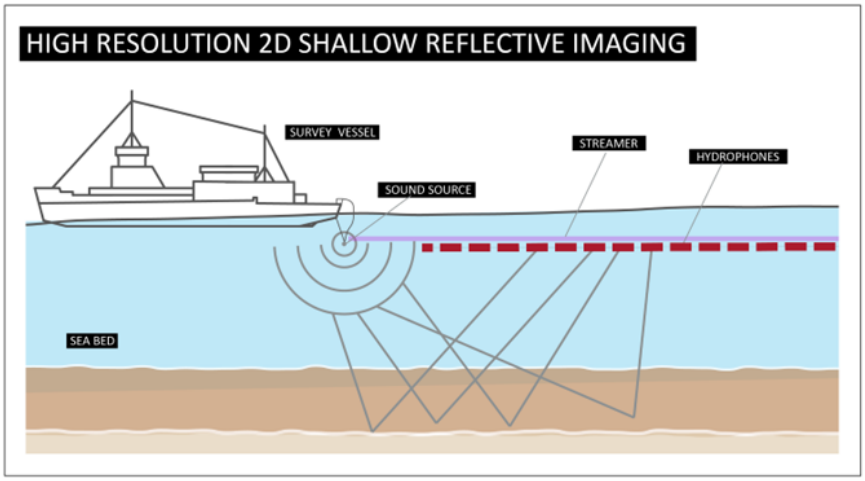


**Figure 3: High Resolution Shallow 2D Seismic Survey**

### Will the MODU and flaring be visible from the shoreline?

The well location is approximately 37km offshore. At this distance there would be no change to ambient light at the shoreline.

### What will the drilling involve?

Activities include:

- Drill well top-hole sections without a riser where cuttings (rock chips) and drilling fluids are discharged to sea.
- Drill fluids will be water based and of low toxicity.
- A riser and blowout preventer (BOP) are installed to facilitate drilling of the deeper well sections.
- Drilling fluids and cuttings are returned to the rig once the riser is in place:
  - Drilling fluids are separated using solids control equipment and recirculated into the drilling fluid system.
  - Cuttings are discharged below the water line.

### What is Vertical Seismic Profiling

Vertical seismic profiling (VSP) involves an acoustic source suspended in the water column generating sound pulses that reflect through the seabed and are recorded by receivers to generate a profile along sections of the well. This process is repeated as required for different well sections. VSP operations are typically short-term (4 hours) and utilise a small acoustic source (4 x 150 $in^3$).

### How will the plug and abandonment be carried out?

Plug and abandonment operations involve setting a series of permanent cement plugs within the well. Plugs will be set above hydrocarbon bearing intervals identified for isolation, at appropriate barrier depths in the well. These plugs are tested to confirm their integrity. The wellhead is then cut with a mechanical cutting tool and removed below the mudline leaving no remaining well infrastructure on the seabed. This Plug and abandonment operations are undertaken as per the Judith-2 Well Operations Management Plan which is required to be accepted by NOPSEMA.